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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/557,151	04/25/2000	TSUTOMU YAMAZAKI	15162/01860	9300

24367 7590 07/14/2003

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EXAMINER

DO, ANH HONG

ART UNIT	PAPER NUMBER
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2624

DATE MAILED: 07/14/2003

15

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/557,151

Applicant(s)

YAMAZAKI, TSUTOMU

Examiner

ANH H DO

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 13.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Continued Prosecution Application

1. The request filed on 6/30/2003 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/557,151 is acceptable and a CPA has been established. An action on the CPA follows.

Response to Arguments

2. Applicant's arguments filed 6/30/2003 have been fully considered but they are not persuasive.

The Applicant contends the Ishikawa reference does not teach reducing any density difference in the edge image by citing the description of Fig. 17A showing the minute edge images GEm are added back to smoothed image GF1. However, Ishikawa clearly teaches generating of corrected edge image GEa1 by erasing the minute edge images GEm from the edge image GE1 (col. 12, lines 43-44) and then encoding said corrected edge image GEa1 by reversible image compression (col. 12, lines 51-52). In other words, Ishikawa fully discloses reducing a density difference within the edge image region detected by edge detection means (as disclosed in col. 12, lines 36-38), and compressing the image data within the edge region (i.e., the corrected edge image GEa1) where the density is reduced.

It should be noted that Ishikawa employs two types of encoding means: fractal encoding means and reversible encoding means. The corrected smooth image which is

generated by adding the minute edge image GEm to the smoothed image GF1 is encoded using said fractal encoding means, while the corrected edge image GEa1 which is generated by eliminating the minute edge images from the edge image GE1 is encoded by said reversible encoding means. And the limitations of claim 1 are only read on Ishikawa by the steps of: generating the corrected edge image by erasing the minute edge images, which have density values less than a threshold, from the edge image (col. 12, lines 43-44); and encoding the corrected edge image using the reversible image compression (col. 12, lines 51-52).

For the foregoing reason, it is believed the rejection should be sustained.

Claim Rejections - 35 U.S.C. § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa et al. (U.S. Patent No. 5,862,264).

Regarding claim 1, Ishikawa discloses:

- a region detector 14 for detecting an edge region in an image data GA (Fig. 1);
- a density conversion unit for reducing a density difference within the edge region (col. 12, lines 39-44, teaches corrected edge image generating means corresponding to the claimed density conversion unit for eliminating minute edge

images having density values smaller than a predetermined threshold value relative to the density value of each pixel of the edge image to generate a corrected edge image);

- a compression unit for compressing the image data within the edge region where the density difference is reduced by said conversion unit, using an affine transformation (Fig. 1: reversible image compression 16; and col. 12, lines 51-52, teaches reversible encoding means for encoding the corrected edge image within the edge image where the density difference has been eliminated);

- an expansion unit for expanding the image data compressed by said compression unit 16 (Fig. 1: reversible decoding 22).

Although Ishikawa does not specifically teach using discrete cosine transform, it is well-known in the art and can be used in a reversible image compression such as a reversible compression unit 16 in Ishikawa for suppressing a decrease in image quality of restored images (col. 1, line 66 - col. 2, line 1). Therefore it would have been obvious to employ a DCT in the reversible compression unit in Ishikawa in order to obtain a high image quality of restored images.

Regarding claim 6, since this claim is a method claim corresponding to apparatus claim 1, the discussion of claim applies hereto.

Regarding claim 11, Ishikawa discloses computer programs (col. 1, lines 19-20) to perform the steps in claim 6 and the discussion of claim 6 therefore applies hereto.

Regarding claims 2, 3, 7, 8, 12, and 13, Ishikawa teaches converting N-bit image data into (N-1)-bit image data and increasing density value of the converted (N-1)-bit image data a certain amount (see Figs. 4(A) and 4(B)).

Regarding claims 4, 9, and 14, Ishikawa teaches an image reader for reading a document and generating an image data to be processed (col. 5, lines 37-42).

Regarding claims 5, 10, and 15, although Ishikawa does not specifically teach a printer for printing the expanded image data on a paper, the printer is well-known in the art and can be used in the form of a hardware such as one in Ishikawa for outputting the expanded image data (col. 5, lines 9-15), wherein the restored smoothed image data can be obtained (col. 5, lines 16-18). Therefore, it would have been obvious to use the printer as hardware for outputting the expanded image data in Ishikawa in order to obtain the restored smoothed image.

Conclusion

5. This is a CPA of applicant's earlier Application No. 09/557,151. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

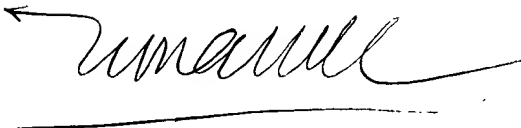
Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANH H DO whose telephone number is 308-6720. The examiner can normally be reached on 5/4-9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID K MOORE can be reached on 308-7452. The fax phone numbers for the organization where this application or proceeding is assigned are 308-5397 for regular communications and 308-5397 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-3900.

July 11, 2003.

A handwritten signature in cursive script, appearing to read 'anhongdo', with a horizontal line underneath it.

ANH HONG DO
PATENT EXAMINER